

NISTTech

MULTI-HETERODYNE DETECTION WITH DUAL OPTICAL FREQUENCY COMBS GENERATED FROM CONTINUOUS-WAVE LASERS

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Abstract

<p>This is a measurement method which utilizes electro-optic phase modulators, arbitrary waveform generators and frequency multipliers to generate phase coherent optical frequency combs containing a high number of individual frequency components from a continuous-wave laser. The two optical frequency combs are generated with high fidelity from a single source and with slightly different frequency spacings by the EOMS and an arbitrary waveform generator, thus, allowing for high bandwidth compression and multi-heterodyne detection in the radiofrequency domain. Each individual frequency component is simultaneously recorded and quantified, thus, allowing for multiplexed spectroscopic detection. The AWG also allows for on-conventional comb optimization using tailored waveforms and harmonics and for frequency chirping.</p>

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Status of Availability

This invention is available for licensing exclusively or non-exclusively in any field of use.

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